

Relations between Team Work and Innovation in Organizations and the Job Satisfaction of Employees: A Factor Analytic Study

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This paper examines the relationship between organizational culture and employee job satisfaction in wire and cable manufacturing companies. The subjects of the study were 339 employees, working in a variety of jobs, for 10 cable and wire companies quoted on the Taiwan stock exchange. The key variables were assessed by the Wallach (1985) Organizational Culture Index and the Job Satisfaction Survey of Lyons, Liptin & Young (2003) respectively. The two scales were factor analyzed to indicate the main 'aspects' or 'dimensions' that underlie each of the two measures. Significant correlations were found between the two aspects of organizational culture and the two aspects of job satisfaction uncovered by the factor analyses. It is argued that the results suggest that the industry needs an innovative and group-oriented culture which promotes employee job satisfaction. In addition, it is argued from the findings that the job satisfaction of these Chinese employees will be strengthened by their organization gaining external recognition and respect.

Introduction

The Taiwanese wire and cable industry has been in existence for more than half of century. It has always had a conservative business 'culture' with close connections with the government. The industry relies heavily on basic technology and a detailed knowledge of the materials needed to produce electricity. In the past two decades however globalization and the emergence of high tech industries has forced wire and cable firms, in Taiwan at least, to restructure their operations, creating many redundancies and forcing managers to reconsider their 'conservative' way of doing business and to deal with the effects of this kind of culture on the job satisfaction of its employees. This is the focus of our attention in this investigation: What will be the effect of the organizational culture of firms in this conservative industry on the feelings of employees about their jobs? To help answer this question, a number of public electric wire and cable firms were investigated in this study. Independent measures were made of organizational culture in each firm and the extent to which the employees in each firms felt satisfied or dissatisfied with their jobs. It is expected that the results of the study will have implications for how managers should treat or look after the staff in a traditional industry run on relatively 'conservative' lines.

Background to the study

Culture can be broadly understood as 'a set of basic assumptions about how the world is and ought to be that a group of people share and that determines their perceptions,

thoughts, feelings, and, to some degree, their overt behavior' (Schein, 1996). Organizational culture reflects individuals' interpretations of events and situations in organizations (Peterson & Smith, 2000). It refers to a system of shared meaning held by members that distinguishes the organization from other organizations (Robbins, 2001). In the light of these definitions, different organizations can be regarded as having their own cultures, which affect or influence the attitudes and sometimes the behaviours of their employees (Flamholts, 2001). To assess the culture in each organization, as perceived by its employees, the present study used OCI (Organizational Culture Index) of Wallach (1983).

In the broadest sense, job satisfaction is a general attitude a person has or holds towards his or her job. One of the major contributors to the study of job satisfaction was Herzberg who claimed that factors leading to job satisfaction are separate and distinct from factors leading to job dissatisfaction (Lyons, Lapin & Young, 2003). It has been well established that employee job satisfaction can contribute to their psychological well being both at work and outside (Robbins, Peterson, Tedrick, & Carpenter, 2003). To what extent employees are able to contribute to their organization--and the degree to which such contributions are recognized and rewarded—as well as the appropriateness of organizational practices—for the particular employees—have been shown to be the best predictors of overall job satisfaction and satisfaction with the organization (Leung, Sui & Spector, 2000). In the present study the JSS indices (Job Satisfaction Survey) developed by Lyons et al (2003) will be used to measure how satisfied employees are with their jobs.

Methodology

In the present study the firms that formed the sample were drawn from the list of public electric wire and cable companies on the Taiwan Stock Exchange in 2002. Proportional stratified sampling was then undertaken, and a total of 395 questionnaires were sent to employees of these ten selected companies by postal mails. 341 pieces were returned. 2 pieces of returned questionnaires were discarded for statistical reasons. Table 1 provides data on the samples.

Table 1 Number of population and sampling

Company Code	Number of staff	Questionnaire issued	Questionnaire returned
Company A	280 (9.16%)	36 (9.11%)	30 (8.80%)
Company B	854 (27.95%)	110 (27.85%)	109 (31.96%)
Company C	235 (7.69%)	30 (7.60%)	28 (8.21%)
Company D	223 (7.30%)	29 (7.34%)	29 (8.50%)
Company E	275 (9.01%)	36 (9.11%)	26 (7.62%)
Company F	135 (4.42%)	18 (4.56%)	17 (4.99%)
Company G	108 (3.54%)	14 (3.54%)	2 (0.59%)
Company H	209 (6.84%)	27 (6.84%)	10 (2.93%)
Company I	106 (3.46%)	14 (3.54%)	14 (4.11%)
Company J	544 (17.81%)	70 (17.37%)	65 (19.06%)
Company K	86 (2.82%)	11 (2.78%)	11 (3.23%)
Total	3,055 (100.00%)	395 (100.00%)	341 (100.00%)

Demographic data from the samples revealed the following information about the samples: Seven companies (70%) have been in this business for more than 30 years: Seven companies (70%) have more than 300 employees; 76.4% of the employees who responded to the survey were graduates of university and college. 70% of the sample firms are located in northern Taiwan. 77.80% of the employees in the sample of firms are males: 60% of these companies have annual sales not less than NT\$3,000 million of 2002: 47.7% of employees are in the age range from 31 to 40. The questionnaire required responses on a 5-points Likert-type scale in which ‘1’ represented ‘strongly disagree’ and ‘5’ represented ‘strongly agree’. Descriptive statistics and factor analysis were used to establish the major factors that comprised or made up the two main dimensions investigated in the study (‘organizational culture’ and ‘job satisfaction’). Canonical correlation analysis was used to establish the relationship between the various aspects of these dimensions. Table 2 gives the alpha coefficients, which provide a measure of the internal consistency or reliability for the scales used to assess the main dimensions investigated in this study two dimensions. The results suggest that the scales are sufficiently reliable, by established standards.

Results of the study

The means and standard deviations of each of the aspects of job satisfaction and organizational climate measured in this study are given in Table 3 for Organizational Climate and in Table 4 for Job Satisfaction. Before proceeding to the factor analysis, the Kaiser-Meyer-Olkin measure of sampling adequacy was applied to the sample for the measure of job satisfaction and that of organizational culture. The results were 0.950 for the organizational culture sample and 0.950 for the job satisfaction sample. In addition, Bartlett spherical test was employed to assess the ‘suitability’ of the scales for measuring what they purport to assess or quantify. The results of this analysis are given in Table 5 which provides the indices of ‘suitability’ for the measures of organizational culture and of job satisfaction used in the present study. To identify the major factors or dimensions underlying each measure, the two scales were each subjected to a principal components factor analysis with varimax rotation. The results of the factor analyses are given in Table 6.

The relations between the two sets of variables was measured by means of a canonical correlation analysis, the result so which are summarized in figure 1. In the figure, canonical loadings above 0.3 indicate that the particular relationship is significant in explanation at the .05 level. The results given in Figure 1 are summarized in Table 7.

Table 2 Cronbach’s α value

Dimension	Full samples
Organizational Culture	0.95
Job Satisfaction	0.95

Table 3 Mean & standard deviation of Organizational Culture Dimension

Question	Mean	Standard deviation
Colleagues are pleasant to assist & help each other on job.	3.86	0.75
Company much cares performance.	3.76	0.76
Company is aggressive to collect external information to breakthrough.	3.59	0.84
Comments for improvement are encouraged by company.	3.63	0.86
Systems and documentation are scrupulous.	3.65	0.86
Encourage & focus on innovation.	3.31	0.87
Care customers' relation management.	3.73	0.81
Tradition & ethics are much important in organization.	3.46	0.87
New management processes will be tried and executed in organization.	3.36	0.91
Employees will be informed organization's policy of diversification.	3.29	0.95
Management styles are conserved & lack of intention to change.	3.29	0.97
Employees support and cooperate the organizational change.	3.51	0.84
There is no chance to innovate for organizational business.	3.54	0.78
Sources and assistance will be submitted across departments actively.	3.44	0.83
Organization will invest sources on innovation for products and technology.	3.58	0.80

Table 4 Mean & standard deviation of Job Satisfaction

Question	Mean	Standard deviation
The workload in my current position and salary I have	3.14	0.89
The feeling of worthwhile accomplishment I get from doing my job	3.50	0.76
The working environment and facility	3.36	0.81
My relationship with the people I work with on my job	3.77	0.74
Satisfied with current job stability	3.53	0.77
The relationship with the supervisor or manager	3.63	0.79
Current job can make me display much more ability	3.48	0.81
The workload in my current position is acceptable	3.52	0.82
Suggest to improvement and receive the recognition from my supervisor	3.47	0.81
Always expect opportunities for advancement that exist in my job	3.50	0.79
The recognition I receive from the general public by doing my job	3.49	0.82
The recognition I receive from the status of my position within my profession	3.61	0.78
Job satisfaction can benefit the enterprise innovation ability	3.53	0.79
My job is for salary only without any opportunity to upgrade	3.65	0.73
If I had it to do over again, I would choose my same job or career	3.21	0.94
Current job make me more competence in competition	3.26	0.91
Current routine can be more efficient by improvement if I need to do it.	3.64	0.80

Table 5 Bartlett test value

Dimension	χ^2	p value
Organizational Culture	3453.85	0.00*
Job Satisfaction	3929.87	0.00*

* means p value is less than 0.05 and statistical significance.

Table 6 Factor analysis and results

Dimension	Factor	Eigenvalue	Total variance explained	αvalue
Organization Culture	Innovation Spirit Culture	8.720	58.130%	0.920
	Team Work Culture	0.900	64.150%	0.890
Job Satisfaction	Internal Satisfaction	9.540	56.130%	0.930
	External Recognition	0.990	61.920%	0.890

Fig.1 Canonical structure

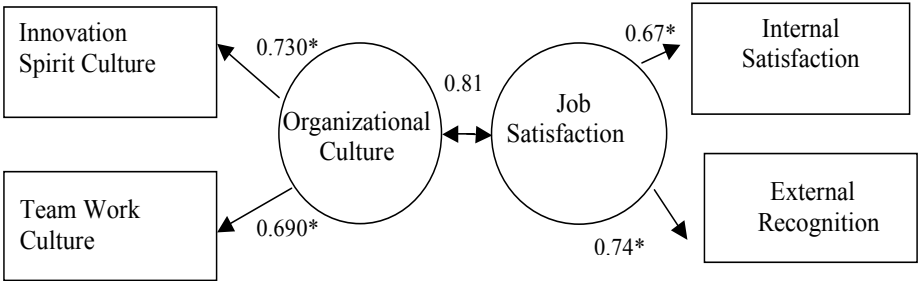


Table 7 Comments of canonical correlation between Organization Culture and Job Satisfaction

Dimension	Factor	Correlation between COVARIATES and Canonical variables	Correlation between DEPENDENT and Canonical variables	Pct Variable Correlation	Index of Redundancy	Square Correlation
Organizational Culture	Innovation Spirit Culture	0.730 (<i>highly positive</i>)		50.00%	32.50%	0.81
	Team Work Culture	0.690 (<i>low positive</i>)				
Job Satisfaction	Internal Satisfaction		0.670 (<i>low positive</i>)	50.00%	32.50%	
	External Recognition		0.740 (<i>highly positive</i>)			

In this study, analysis of variance was used to test if the means of the sample three populations are equal. The results of the Levene test-- for equality of variances-- adopted in this study are given in Table 8. The results of all these tests are summarized in table 9.

Table 8 Results of ANOVA

	Organizational Culture		Job Satisfaction	
	Levene test	p value	Levene test	p value
History of company	0.19	0.90	1.88	0.13
Number of employees	0.40	0.66	0.04	0.95
Department	2.69	0.01*	2.40	0.03*
Education	0.78	0.50	0.82	0.47
Location	0.027	0.86	0.001	0.98
Gender	0.09	0.75	0.52	0.47
Revenue	27.64	0.00*	33.34	0.00*
Ages status	3.93	0.01*	1.52	0.21
History of service	3.59	0.00*	3.61	0.01*
	Organizational Culture		Job Satisfaction	
	Kruskal-Wallis test (p value)	Welch's t' test (p value)	Kruskal-Wallis test (p value)	Welch's t' test (p value)
History of company	25.68 (0.00*)		14.53 (0.00*)	
Number of employees	3.93 (0.14)		2.82 (0.23)	
Department			2.80 (0.01*)	1.86 (0.10)
Education	3.64 (0.30)		4.79 (0.19)	
Location	4.43 (0.04*)		0.12 (0.73)	
Gender			0.00 (0.96)	0.19 (0.67)
Revenue		5.78 (0.00*)		7.06 (0.00*)
Ages status		6.60 (0.00*)	21.79 (0.00*)	
History of service			4.52 (0.00*)	4.63 (0.00*)

* It means p value is less than 0.05 and statistical significant

Table 9 Significant differences between dimensions and background

	Organizational Culture	Job Satisfaction
History of company	V	V
Number of employees		
Department	V	V
Education		
Location	V	
Gender		
Revenue	V	V
Ages status	V	V
History of service	V	V

Conclusions

The wire and cable has been long-established in Taiwan. It is an industry characterized by 'conservative' values and an 'authoritarian' style of management. In the past, neither management nor employees were much interested in pursuing creative change or seeking genuine and lasting job related satisfaction. Indeed, following typical far-eastern traditions and ideas, it was common for employees to 'hide' and 'conceal' their true feelings, especially from management. However, as a result of rapid and dynamic changes even in their traditionally conservative industry, managers and employees alike have accepted the need for innovation and team work in their organizations if they are to survive let alone and grow. The contention underlying the present study is that employees are only really likely to be innovative and creative in the industry if they are relatively satisfied in their jobs and with their organizations.

The results of the present study found a positive correlation between the dimensions of organization culture assessed in this study and employee job satisfaction. It was also shown that the employees in this study typically valued external recognition more than their own internal satisfaction, a result explicable in terms of the traditional social system and attitudes of Chinese according to which for personal feelings should be forgotten for the overall respect and recognition of their organization. The present findings suggest that the wire and cable industry, in Taiwan at least, needs its employees to work creatively and innovatively in groups and teams if the industry is to survive and compete effectively.

The results of the present study have a number of implications for managers in the industry. For instance, they suggest that an organizational culture that promotes job satisfaction will release the kind of innovation and creativity that the industry needs. The results of the study suggest that the attitudes of the employees are such that managers should not find many obstacles and difficulties from employees, in their drive to make their organizations more creative and innovative. Given the employees concern with external recognition, for their organizations foremost and themselves less so, managers can improve the situation most easily and quickly through improving their external recognition and standing outside.

This study has examined organizational cultures and employee attitudes in public-listed electric wire and cable companies in Taiwan. It has not examined these variables and their relations in smaller companies in the industry who are not publicly listed. It is claimed nevertheless that the results of the study merit attention and perhaps replication and are relevant for managers in the industry. With globalization and cross-cultural issues becoming increasingly important to this industry, future studies should focus on these issues within an international context.

References

- Flamholtz, E. J. (2001). Corporation Culture and The Bottom Line. *European Management Journal*, 19 (3), pp. 268-275.
- Leung, T., Sui, O. & Spector, P. (2000). Faculty Stresses, Job Satisfaction, and Psychological Distress among University Teachers in Hong Kong: The Role of Locus of Control. *International Journal of Stress Management*. April, pp. 121-128.
- Lyons, K. J., Lapin, J. & Young, B. (2003). A study of job satisfaction of nursing and allied health graduates from a Mid-Atlantic University. *Journal of Allied Health*; Spring, 32 (1), pp. 10-17.
- Peterson, M. & Smith, P. (2000). Sources of Organizations, and Culture. In: Ashkanasy, N.M., Wilderom, C., Peterson, M., Schneider, B. (Eds.), *The handbook of organizational culture and climate*. Sage, Thousand Oaks, CA.
- Robbins, S.P. (2001). *Organizational Behavior*. Prentice Hall International, Inc. Upper Saddle River, New York, 07458 U.S.A.
- Robbins, M. J., Peterson, M., Tedrick, T. & Carpenter, J. R. (2003). Job satisfaction on NCAA Division III Athletic Directions: Impact on Job Design and Time on Task. *International Sport Journal*: Summer, 7 (2), pp. 46-57.
- Schein, E. H. (1996). Three Cultures of Management: The Key to Organizational Learning. *Sloan Management Review*. 38(1), pp.9-20.
- Wallach, E. J. (1983). Individual and Organization: The Culture Match. *Training and Development Journal*. 37, pp. 26-38.

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